ABSTRAK

Sity Muzdalifah Dali. 2015. Pengaruh Dimetil Sulfoksida (DMSO) terhadap Penetrasi Krim Asam Kojat secara *In Vitro*. Skripsi, Jurusan Farmasi. Fakultas Ilmu-Ilmu Kesehatan Dan Keolahragaan. Universitas Negeri Gorontalo. Pembimbing I Robert Tungadi., S.Si., M.Si., Apt dan Pembimbing II Dewi Rahmawaty Moo, S.Farm., M.Sc., Apt

Asam kojat merupakan salah satu senyawa yang dapat menghambat aktivitas enzim tirosinase sehingga menghambat pembentukan melanin dan memutihkan kulit. Di sisi lain, asam kojat bersifat hidrofilik yang menjadikannya sulit untuk berpenetrasi ke dalam kulit. Penelitian ini bertujuan untuk mengetahui pengaruh penggunaan Dimetil Sulfoksida (DMSO) sebagai bahan *penetrant enhancer* terhadap penetrasi krim asam kojat secara *in vitro*. Krim dibuat dalam 4 formula yang memiliki variasi konsentrasi DMSO 0%, 3%, 5% dan 7%. Pengujian penetrasi krim asam kojat menggunakan sel Difusi *Franz* dan kulit tikus putih sebagai membran difusi. Hasil penelitian menunjukkan bahwa krim F4 dengan kandungan DMSO 7% merupakan formula terbaik dalam membantu penetrasi asam kojat dengan jumlah kumulatif terpenetrasi sebesar 59,2963 $\mu g/cm^2$, persen terpenetrasi sebesar 4,839% dan fluks 23,7185 $\mu g/cm^2$/jam. Dari hasil analisis statistik menggunakan *One Way* ANOVA (*Analysis of Variance*) menunjukkan bahwa terdapat pengaruh yang bermakna ($p < 0,01$) dari konsentrasi DMSO terhadap persentase terpenetrasi krim asam kojat secara *in vitro*.

Kata Kunci : Asam Kojat, Krim, DMSO, Penetrasi, Sel Difusi Franz

ABSTRACT

Sity Muzdalifah Dali. 2015. The Influence of Dimethyl Sulphoxide (DMSO) Against Kojic Acid Cream Penetration in Vitro. Essay. Pharmacy Department. Faculty of Health and Sport Sciences. State University of Gorontalo. Adviser I : Robert Tungadi, S.Si., M.Si., Apt and Adviser II : Dewi Rahmawaty Moo, S.Farm, M.Sc., Apt.

Kojic Acid is one of synthetic compounds which can inhibit enzyme tyrosinase activity so that it inhibits the formation of melanin and whiten skin. On the other hand, kojic acid is hydrophilic causing it is difficult to penetrate into skin layers. The aim of this study was to know the influence of DMSO use as penetrant enhancer towards kojic acid cream penetration in vitro. Cream was made into 4 formulas having different concentration of DMSO 0%, 3%, 5%, and 7%. The penetrant enhancer test of kojic acid cream utilized Franz Diffusion Cell and rat skin as diffusion membrane. The research result showed that formula 4 (F4) containing DMSO 7% was the best formula in assisting kojic acid to penetrate into skin layers. It could be seen that the amount of kojic acid penetration was 59.2963 $\mu g/cm^2$, the percent of kojic acid penetration 4.839% and flux 23.7185 $\mu g/cm^2$/jam. From statistical analysis using One Way ANOVA (Analysis of Variance) showed that there was a significant influence ($p<0.01$) from DMSO concentration against the percentage of kojic acid penetration in vitro.

Keywords : kojic acid, cream, DMSO, penetrant enhancer, diffusion cell